WHAT IS CLAIMED IS:

1. Microparticles comprising at least one active agent embedded within a biocompatible, biodegradable polymeric matrix, wherein said microparticles are prepared with an ionic liquid.

2. The microparticles according to Claim 1 wherein the ionic liquid has essentially no vapor pressure.

3. The microparticles according to Claim 5 wherein the ionic liquid has a vapor pressure of less than about 1 mm/Hg at 25 °C.

4. The microparticles according to Claim 1 wherein the ionic liquid is selected from the group consisting of: an imidazolium salt, pyridium salt, ammonium salt, phosphonium salt and sulphonium salt.

5. The microparticles according to Claim 1 wherein the ionic liquid is selected from the group consisting of: 1-butyl-3-methylimidazolium hexafluorophosphate, 1-hexyl-3-methylimidazolium hexafluorophosphate, 1-octyl-3-methylimidazolium hexafluorophosphate, 1-decyl-3-methylimidazolium hexafluorophosphate, 1-dodecyl-3-methylimidazolium hexafluorophosphate, 1-ethyl-3-methyl-imidazolium-trifluorosulfonate, 1-butyl-3-methyl-imidazolium-trifluorosulfonate, 1-ethyl-3-methylimidazolium bis((trifluoromethyl)sulphonyl)-imidate, 1-hexyl-3-methylimidazolium bis((trifluoromethyl)sulphonyl)amide, 1-ethyl-3-methyl-imidazolium-trifluoroacetate, 1-butyl-3-methyl-imidazolium-trifluoroacetate, 1-ethyl-3-methyl-imidazolium-tetrafluoroborate, 1-hexylpyridinium tetrafluoroborate, 1-octylpyridinium tetrafluoroborate, 1-butyl-3-methylimidazolium tetrafluoroborate, 1-methy-3-ethyl imidazolium chloride, 1-ethyl-3-butyl imidazolium chloride, 1-methy-3-butyl imidazolium chloride, 1-methy-3-butyl imidazolium bromide, 1-octyl-3-methyl-imidazolium-bromide, 1-methy-3-propyl imidazolium chloride, 1-methy-3-hexyl imidazolium chloride, 1-methy-3-octyl imidazolium chloride, 1-methy-3-decyl imidazolium chloride, 1-methy-3-dodecyl imidazolium chloride, 1-methy-3-hexadecyl imidazolium chloride, 1-methy-3-octadecyl imidazolium chloride, 1-methy-3-octadecyl imidazolium chloride, ethyl pyridinium bromide, ethyl pyridinium chloride, ethylene pyridinium dibromide, ethylene pyridinium dichloride, butyl pyridinium chloride, benzyl pyridinium bromide, and mixtures thereof.

6. The microparticles according to Claim 1 wherein the polymer is a co-polymer of poly(glycolic acid) and poly(D,L-lactic acid).

7. The microparticles according to Claim 1 wherein the active agent is selected from the group consisting of a peptide, protein, hormone, analgesic, anti-migraine agent, anti-coagulant agent, narcotic antagonist, chelating agent, anti-anginal agent, chemotherapy agent, sedative, anti-neoplastic, prostaglandin and antidiuretic agent, cerebral stimulant, pain management agent, antalkaloid, cardiovascular drug and agent for treating rheumatic condition.

8. The microparticles according to Claim 7 wherein the peptide or protein is selected from the group consisting of insulin, calcitonin, calcitonin gene-regulating protein, parathyroid hormone, GLP-1, atrial natriuretic protein, colony-stimulating factor, GM-CSF, betaseron, erythropoietin, α-interferon, β-interferon, γ-interferon, human growth hormone, octreotide, somatropin, somatotropin, somastostatin, somatomedins, luteinizing hormone releasing hormone, tissue plasminogen activator, growth hormone releasing hormone, oxytocin, estradiol, growth hormones, leuprolide acetate, factor VIII, interleukin-2, interleukin-3, interleukin-6, interleukin-14, and analogues and antagonists thereof.

9. Microparticles comprising at least one active agent embedded within a biocompatible, biodegradable polymeric matrix, and at least one ionic liquid.

10. A method for preparing microparticles comprising (i) dissolving or dispersing an active agent in a biocompatible, biodegradable polymer; (ii) dissolving the polymer containing the active agent in an ionic liquid; and (iii) removing the ionic liquid to form microparticles.

11. A method for preparing microparticles comprising (i)' dissolving or dispersing an active agent in an ionic liquid; (ii)' dissolving the ionic liquid containing the active agent in a biocompatible, biodegradable polymer; and (iii)' removing the ionic liquid to form microparticles.

12. A method for preparing microparticles comprising (i)" dissolving or dispersing an active agent in a biocompatible, biodegradable polymer and an ionic liquid to form a mixture; (ii)" adding a solvent and at least one surfactant to the mixture; and (iii)" removing the ionic liquid to form microparticles.

13 A method for preparing microparticles comprising (i)''' dissolving or dispersing a biodegradable polymer in an ionic liquid; (ii)''' emulsification of the resulting solution in a lipophilic phase; (iii)''' adding a solution of an active agent to the emulsion to form microparticles, and (iv)''' removing the ionic liquid.

14 The method according to Claim 12 wherein the surfactant is selected from the group consisting of a reaction products of a natural or hydrogenated castor oil and ethylene oxide, polyoxyethylene-sorbitan-fatty acid esters, polyoxyethylene fatty acid esters, polyoxyethylene-polyoxypropylene co-polymers and block co-polymers, dioctylsulfosuccinate or di-[2-ethylhexyl]-succinate, phospholipids, propylene glycol mono- and di-fatty acid esters, polyoxyethylene alkyl ethers, tocopherol esters, and docusate salts and combinations thereof.

15. The method according to Claim 12 wherein the solvent is selected from the group consisting of an alkyl acetate, lower alkyl alcohol, aliphatic C_{6-12} hydrocarbon, aromatic hydrocarbon, dialkyl ketone, dialkyl ether, and combinations thereof.

16. The method according to claim 13 wherein the lipophilic phase is selected from the group consisting of liquid paraffins, silicon oils, mixtures of middle-chain triglycerides, oleic acid oleoyl esters and combinations thereof.